

### **REMARKS**

Claims 1-36 are pending in the present application. Claims 1-36 have been rejected. Claims 1, 8, 17, 23, and 32 have been amended. The specification has been amended. The Amendments here presented are made for the purposes of better defining the invention, rather than to overcome the rejections for patentability. No presumption should therefore attach that the claims have been narrowed over those earlier presented, or that subject matter or equivalents thereof to which the Applicants are entitled has been surrendered. No new matter has been introduced by these amendments. Reconsideration and allowance is respectfully requested in view of the amendments and the following remarks.

#### **The 35 U.S.C. 112, second paragraph rejection**

Claims 1-36 have been rejected under 35 U.S.C. § 112, second paragraph. The Examiner contends that “[I]t is unclear whether the claimed diamond is on the surface of the substrate or within the substrate...” Applicant respectfully disagrees.

The Applicant has amended the specification to further clarify the disclosure of the invention. As described in the specification, the diamond is deposited on an open-celled substrate such that the diamond coats all exposed surfaces of the framework substrate. The specification clearly defines the phrase in the claims “an open-celled ceramic framework material substrate” and “ceramic open-cell foam substrate”.

No new matter is introduced by this amendment, since the application as a whole and the Figures in particular teach this aspect of the invention. “[M]atter added that makes explicit that which was implicit, inherent, or intrinsic in the original disclosure is not new matter and is permitted”. 35 U.S.C. § 132.

Additionally, the Applicant has amended Claims 1, 8, 17, 23, and 32 in accordance with the amendments to the specification to more clearly define the invention. Applicant has also amended Claim 36 to delete “palladium”.

Reconsideration and withdrawal of this rejection is respectfully requested.

The 35 U.S.C. §102 rejections

Claims 1-36 have been rejected under 35 U.S.C. § 102(e), as being anticipated by Zakhidov et al. (U.S. Patent No. 6,261,469). Applicant respectfully disagrees with the Examiner's assertions.

The Examiner contends, "As best construed by the language of the claims, Zakhidov et al discloses the claimed diamond or doped diamond on an open framework within the claimed thickness."

To anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

Zakhidov et al. teach processes for the assembly of three-dimensional structures having periodicities on the scale of optical wavelengths, and at both smaller and larger dimensions, as well as compositions and applications therefore. Invention embodiments involve the self assembly of three-dimensionally periodic arrays of spherical particles, the processing of these arrays so that both infiltration and extraction processes can occur, one or more infiltration steps for these periodic arrays, and, in some instances, extraction steps. (Abstract) Zakhidov et al. teach assembling a three-dimensional structure having a periodicity. (Col. 6, lines 19-32) The first step comprises assembling nearly monodispersed spheres of material A (such as 250 nm SiO<sub>2</sub> spheres) into an "opal-like" lattice. ) Zakhidov et al. use this term opal-like (or opal or opal template) to designate structures having a packing of spheres that is similar to the well-known packing of SiO<sub>2</sub> spheres in natural gem opal. (Col. 6, lines 33-40)

The Zakhidov et al. reference does not teach or suggest each and every element of the claimed invention. The present invention claims, as amended, "an aperiodic open-celled ceramic framework material substrate" and "an aperiodic ceramic open-cell foam substrate." In contrast to the claimed invention, the Zakhidov et al. reference teaches a

three-dimensional structure having a periodicity. The spheres utilized in making the three-dimensional structure in the Zakhidov et al. reference are monodispersed.

The Zakhidov et al. reference does not teach or suggest each and every element of the claims. Therefore, the present invention is not anticipated by the Zakhidov et al. reference.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1-7 and 17-22 have been rejected under 35 U.S.C. § 102(e), as being anticipated by Saito et al. (U.S. Patent No. 6,361,857).

The Examiner contends, "As best construed by the language of the claims, Saito et al discloses the claimed diamond on the claimed substrate." Applicant respectfully disagrees with the Examiner's assertions.

As stated above, to anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

The Saito et al. reference teaches a thin diamond film layer that is formed on a substrate with good adherence. A heatsink includes a substrate of a sintered compact including Cu and W, and a thin diamond film layer formed on the surface of the substrate. (Abstract) The Saito et al. reference further teaches the heatsink is formed of a porous body and a thin diamond film layer. The holes in the porous body are then filled in with copper and possibly diamond, if the holes are near the surface of the heatsink. (Col. 20, line 62 to Col. 21, line 2)

The Saito et al. reference does not teach or suggest each and every element of the claimed invention. The present invention claims, as amended, "an aperiodic open-celled ceramic framework material substrate" and "an aperiodic ceramic open-cell foam substrate." In contrast to the claimed invention, the Saito et al. reference teaches a porous

body that is completely filled with material, the resulting structure is not open-celled. Additionally, the Saito et al. reference teaches a thin layer of diamond is deposited only on the surface of the heat sink, not on all exposed surfaces.

The Saito et al. reference does not teach or suggest each and every element of the claims. Therefore, the present invention is not anticipated by the Saito et al. reference.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1-7 and 17-22 have been rejected under 35 U.S.C. § 102(e), as being anticipated by Okamura et al. (U.S. Patent No. 5,618,625) or Kikuchi et al. (U.S. Patent No. 4,731,296) or Peters et al. (U.S. Patent No. 5,567,526).

The Examiner contends, "As best construed by the language of the claims, the above references disclose the claimed diamond on the claimed substrate." Applicant respectfully disagrees with the Examiner's assertions.

As stated above, to anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

The Okamura et al. reference, the Kikuchi et al. reference, and the Peters et al. reference all teach coating diamond on carbide substrates utilized as tools.

The Okamura et al. reference, the Kikuchi et al. reference, and the Peters et al. reference do not teach or suggest each and every element of the claimed invention. The present invention claims, as amended, "an aperiodic open-celled ceramic framework material substrate" and "an aperiodic ceramic open-cell foam substrate." In contrast to the claimed invention, the Okamura et al. reference, the Kikuchi et al. reference, and the Peters et al. reference teach a solid material being deposited with diamond, not an aperiodic open-celled substrate.

The Okamura et al. reference, the Kikuchi et al. reference, and the Peters et al. reference do not teach or suggest each and every element of the claims. Therefore, the present invention is not anticipated by the Okamura et al. reference, the Kikuchi et al. reference, and the Peters et al. reference.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1-7 and 17-22 have been rejected under 35 U.S.C. § 102(e), as being anticipated by Fujitsu (JP 06056585 or 04129622) or Idemitsu (JP 05320910) or DeBeers (EP 0518631).

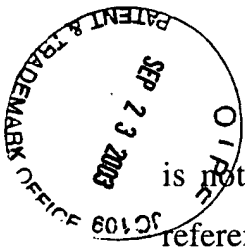
The Examiner contends, "As best construed by the language of the claims, the above references disclose the claimed diamond on the claimed substrate." Applicant respectfully disagrees with the Examiner's assertions.

As stated above, to anticipate a claim under 35 U.S.C. § 102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

The Fujitsu reference, the Idemitsu reference, and the DeBeers reference all teach coating diamond on substrates utilized as tools.

The Fujitsu reference, the Idemitsu reference, and the DeBeers reference do not teach or suggest each and every element of the claimed invention. The present invention claims, as amended, "an aperiodic open-celled ceramic framework material substrate" and "an aperiodic ceramic open-cell foam substrate." In contrast to the claimed invention, the Fujitsu reference, the Idemitsu reference, and the DeBeers reference teach a solid porous material being deposited with diamond; not an aperiodic open-celled substrate.

The Fujitsu reference, the Idemitsu reference, and the DeBeers reference do not teach or suggest each and every element of the claims. Therefore, the present invention



is not anticipated by the Fujitsu reference, the Idemitsu reference, and the DeBeers reference.

Reconsideration and withdrawal of this rejection is respectfully requested.

Request for Allowance

It is believed that this Amendment places the above-identified patent application into condition for allowance. Accordingly, entry of this Amendment is appropriate and is respectfully requested.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Respectfully submitted,  
SIERRA PATENT GROUP, LTD.

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